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**Title:** The Cathedral of St. John the Divine, New York City

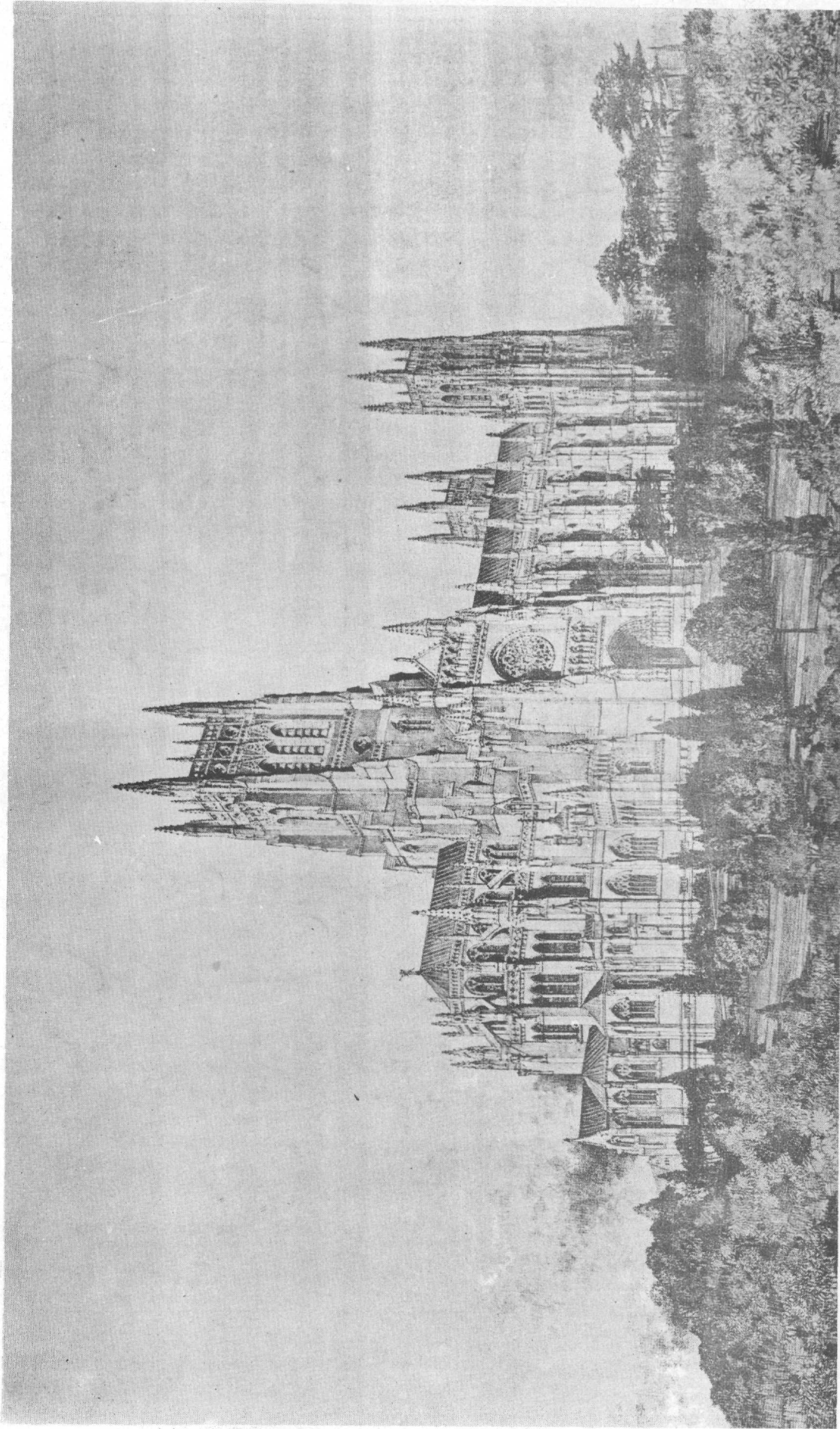
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CATHEDRAL OF  
SAINT JOHN THE DIVINE,  
NEW YORK

CRAM AND FERGUSON, ARCHITECTS

# THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK CITY

By PERRY BORCHERS

On an eminence known as Morningside Heights, a few blocks north of Central Park on the island of Manhattan, is rising the Cathedral of St. John the Divine, the largest church in the English-speaking world. The great facade and the nave of the cathedral have been completed, but the long vista down the center of the church has been interrupted by a screen wall before which stands the altar, and behind which the workmen labor at the construction of the crossing and transepts and the remodeling of the choir and sanctuary.

St. John the Divine has been in the process of building for 48 years. Construction was started in 1892. The work has been interrupted by war, change of plans, and lack of finances, but final completion of this great building seems now in view.

It requires years to build great cathedrals. St. Paul's in London took 35 years; the Cathedral of Chartres was built in 66, the Cathedral of Rheims in 50, and that of Amiens in 68 years. Many medieval cathedrals were in process of building well over a century. So perhaps it is not surprising that this great cathedral in New York City, built with the masonry materials of medieval times, (not the perishable steel and concrete of today), should be so long in construction.

The Cathedral of St. John the Divine dwarfs all other cathedrals and churches of America, England, and France. It is 601 feet in length and will be 460 feet in height. It is said that it will be the longest and highest (exterior) cathedral in the world. Only two Christian churches in the world exceed it in area, St. Peter's in Rome with 227,069 square feet, and the Cathedral of Seville in Spain with 128,570 square feet. The area of St. John the Divine will be 109,082, with a seating capacity of 10,000, and standing room for 40,000 persons.

The idea of the Cathedral of St. John the Divine was first mentioned in an address by the Right Reverend Horatio Potter, sixth bishop of New York in 1872. In 1873 the cathedral was incorporated, Bishop Potter, in setting forth the founders' reasons for planning so vast a cathedral, used almost the exact words of the celebrated canon of Seville Cathedral who in defending the undertaking of that great structure said: "The magnitude of this plan makes it impossible that the timid souls of this generation can reduce the design to something that future generations would hold inadequate and unworthy."

In 1891 a competition was held for the design of the Cathedral. The architects Heins and Lafarge won the competition with their Romanesque design, and in December 1892 the cornerstone was laid.

The design of Heins and Lafarge was followed until completion of the choir. Then a restudy was made in the French Gothic style, Ralph Adams Cram was appointed consulting architect in 1911, and ground was broken for the nave in 1916. Work ceased in 1917.

In 1925 the ninth bishop of New York, Bishop William Manning started a drive to raise \$15,000,000 to put building operations under way for approximately half the total work. One fourth of the work, the crypt, choir, the seven chapels of the tongues, the crossing, the foundation of the nave, and certain auxiliary buildings had already been built for a cost of about \$6,500,000. Today the work is proceeding, and Bishop Manning has hopes that the great central tower, the south tower, and the reconstruction of the choir and sanctuary to harmonize with the present design may all be accomplished in his time.

In 1927, after 16 years of work, a satisfactory solution was found for the most perplexing problem of the cathedral plan, the design of the great central tower over the crossing. A great dome had been built over the crossing by the architects Heins and LaFarge. This dome did not harmonize with the French Gothic style of the later design of Cram and Ferguson as the dome is not a Gothic element. The Gothic solution would have been a square tower rising directly from the main piers, but since the crossing was 120 feet square this tower would have been disproportionately large and clumsy and would have had a crushing effect on the rest of the cathedral. A 12-sided spire narrowing down from the size of the crossing was originally considered.

The scheme which was finally developed was entirely original, entirely consistent with Gothic construction, but a device which had never occurred to Gothic architects from the twelfth century to that time. A great tower will be raised over the crossing of the nave and transepts of the cathedral with no supporting piers directly beneath it, but with the weight of the tower carried to outer piers by secondary arches springing from above the great main arches. In this manner, a compounding of Gothic structural principle, a 60-foot square tower perfectly proportioned to the exterior of the cathedral will be supported over a void 120 feet square. The weight of the tower will be

converted into thrust by the arches it will rest on, and the weight and thrust will be received by secondary piers and by the arcades in each direction.

By this construction the effect of the immense interior space of the crossing, greater than that of any other Gothic church, will be retained, and the tower that surmounts it will be in proper and pleasing proportion to the exterior of the building. The interior effect should be one of extraordinary impressiveness with combinations of arches, walls, varied surfaces, and different lighting 240 feet in height. Most pleasing is the fact that this entirely original construction is not the result of "false" architecture of concealed steel and cantilevers, but is executed with the masonry of the ancient Gothic builders.

St. John the Divine was planned with the extravagant expectation that it will stand with practically no visible sign of change for 5,000 years. The exterior of the cathedral is granite and is expected to wear one inch in several thousand years. The interior is of Indiana limestone around a granite core.

It seems certain that St. John's should be a much more permanent structure than the European buildings of the same style. The Gothic construction of medieval times was a happy-go-lucky, cut and try method of building. It was not an uncommon occurrence for towers to fall, and various devices were found expedient to support collapsing walls and arches. One such case is the beautiful spire of the Cathedral of Salisbury in England which is supported by 112 flying buttresses and sloping stone struts, plus a score of iron bands to hold sliding masses of masonry together.

In the Cathedral of St. John the Divine all the loads and thrusts were calculated; the crushing strength and allowable loads of all materials were known. This knowledge of material allowed the building of one of the most spacious naves in the world.

Again, in old Gothic the columns and walls usually consisted of an outer shell of cut stone around a core of rubble and lime mortar. Usually the core settled and the shell, sometimes only 6 to 12 inches in diameter, carried the load.

In St. John's columns and walls are of an inner core of granite with an outer casing of Indiana lime-

stone, all set in hard concrete mortar. More slender piers, sometimes disturbingly slender to one accustomed to the sturdy-looking old Gothic piers, were possible with a least diameter of 5 feet to a height of 98 feet. Each course is a single granite block weighing up to four tons apiece. The finished column has the strength of a single monolithic shaft.

An up to date erecting plant has been used with a unique design of steel scaffolding and steel centering for the arches. By the use of durable, selected stone, hard cement mortar, abundant iron clamping and careful workmanship, the builders of St. John the Divine have been "building for the ages."

The great cathedral has not escaped adverse criticism, chiefly because of the vast expenditure necessitated. As in the Middle Ages when the cathedrals were a community project, and masons and other laborers sometimes worked for their board only, and guilds and great merchants made presents of stained glass windows, so Bishop Manning has gone beyond the bounds of his Protestant Episcopal denomination and asked all faiths to contribute to the building of the great cathedral. It is visioned as the spiritual expression of a united community, a great monument to the Glory of God and the further recognition of the Kingdom of Heaven. Many Protestants of other denominations, Catholics and Jews have contributed much to the campaigns, first to raise \$15,000,000 and later to raise \$1,000,000. But many critics have written bitterly about the total expenditure of \$30,000,000 for a cathedral just a few blocks away from the slums of Harlem and Upper Manhattan where, in their opinion, the money could have been used more effectively for the Glory of God and the further recognition of the Kingdom of Heaven.

Whatever criticisms may be directed at its economic and religious factors, the Cathedral of St. John the Divine, conceived by two great architectural firms, and in smaller parts by other architects, and decorated with the products of some of the most skilled sculptors and designers of stained glass, is and will remain a stupendous structure. Its construction and completion is of absorbing interest to architects and engineers of America.

